

Prescription Writing Process

Watershed Analysis Management Response

The watershed analysis management response follows watershed assessment by using its products as the basis for writing prescriptions. Prescriptions are appropriate solutions to the issues or problems identified during the assessment processes and documented within the causal mechanism report(s) for individual watershed administrative units. Characteristics of the system include:

- Performed by a team of qualified field managers with appropriate expertise and training;
- Considers the assessment maps and causal mechanism reports from the Level 1 analysts or the Level 2 specialists plus the management response calls from the rule matrix;
- Provides flexibility for land owners in the form of options designed for specific situations;
- Provides protection for public resources through prescriptions for regulatory application;
- Provides opportunities for resource enhancement or restoration through actions that may be used voluntarily outside of regulations;
- Identifies problems or events not regulated by forest practices and forwards them in the report.

Basic Features

Prescription writing takes the products of watershed assessment and develops management solutions for use on the ground. The basic goal of watershed analysis is to protect and restore specific public resources, i.e., fish, water and capital improvements of the state or its political subdivisions, and the productive capacity of fish habitat, while maintaining a viable forest products industry. The role of prescriptions is to protect and allow the recovery of these resources. In areas of resource sensitivity as set forth in the rule, prescriptions must minimize, or prevent or avoid, the problems identified by the assessment. Since assessment is done on individual watersheds, prescriptions will address individual watershed problems generally on a resource specific basis.

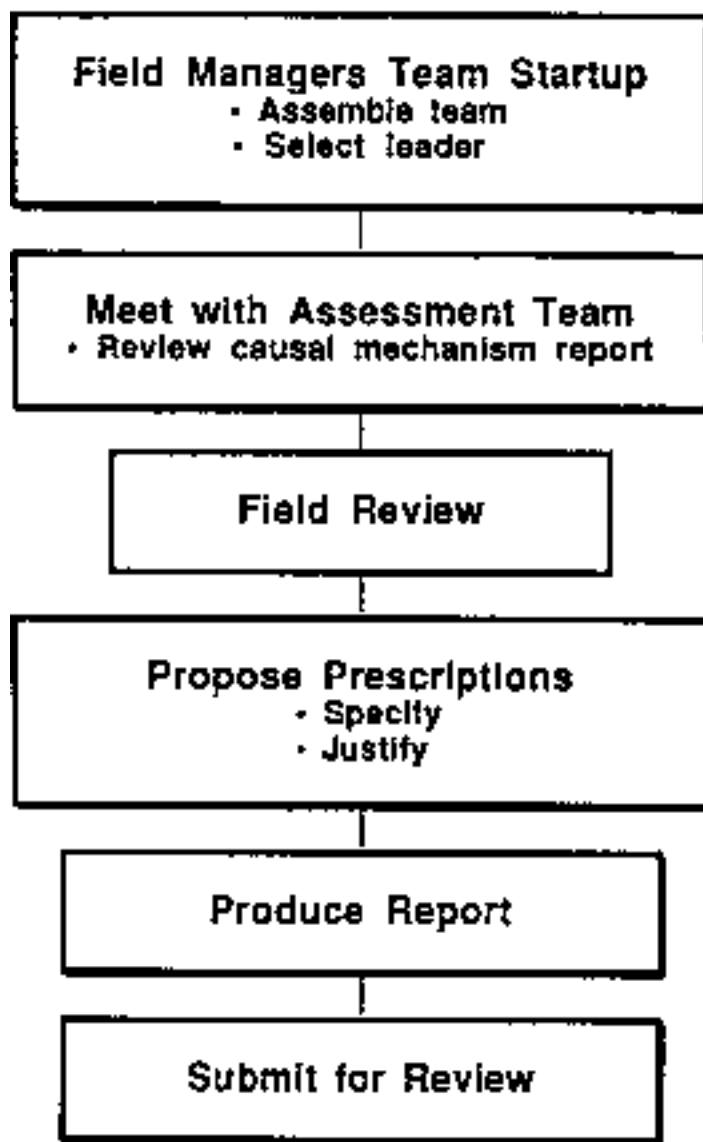
Regulatory use of prescriptions in areas of resource sensitivity will be required for selected forest practices activities and situations identified by each watershed assessment (WAC 222-22-070(3)). Ideally, a number of prescriptions will be developed for each area of resource sensitivity, and landowners may select from a list of options, including alternate plans (WAC 222-12-040). Each prescription will appropriately address the stated problem(s).

Voluntary mitigation measures, initiated by landowners, are encouraged for resource enhancement or restoration. Voluntary actions may be used by the landowner to improve or restore resource conditions. Such voluntary actions may provide the foundation for cooperative projects.

Level 1 prescriptions and Level 2 prescriptions should be similar and the process should be the same. However, a Level 1 analysis with “indeterminate” findings leads to interim prescriptions, whereas a Level 2 (or a Level 1 that does not need Level 2) will lead to final prescriptions. Level 2 should provide for more site-and sensitivity-specific prescriptions. The greater detail and understanding resulting from a Level 2 assessment will provide additional information that is transferred to the prescription process. In some cases, this information will require additional detail in the prescription process as well. Different prescriptions for each situation may be possible at Level 2 due to more specific assessment products.

Watershed analysis and the prescriptions process are based on the concept of adaptive management. Experience will help improve the process. A flow chart of the process is provided in Figure 12.

Figure 12. Field Manager's Team's Prescription Writing Process



Prescription Writing

1. *Assemble the field managers team.* Tentative assignments to the field managers team can be made when the assessment team is being formed. The final field managers team composition should reflect issues brought out in the causal mechanism reports from the assessment. The team composition should generally include expertise in forest management, engineering, hydrology, and fisheries science. Composition may vary depending on resource conditions and the watershed processes identified in the analysis. Individuals from a cross-section of qualified TFW or other participants, with local knowledge, are preferred as team members. Assessment files and information should be gathered and available to the prescription team. Photos, maps and field notes should be included.
2. *Select a team leader.* The team leader should be responsible for setting work schedules and completing the prescription package.
3. *Meet with the assessment team.* It is beneficial for members of the field managers team to observe the synthesis sessions of the assessment team. This helps the field managers understand how the various modules work together to identify problems contained in the causal mechanism reports. In addition, when the assessment phase is complete, it is essential for the assessment team to meet with the field managers team for a complete face-to-face hand-off of the assessment products. This provides a complete overview of all modules, and ensures that all reports are understood. Information gathered and developed during the assessment will be the basis for prescription writing. The watershed analysis team may have recommendations for prescriptions to be reviewed by the field managers. The involvement of the assessment team is to ensure the development of prescriptions that adequately address the areas of resource sensitivity.
4. *Clarification of the causal mechanism reports, as needed.* In some cases, the reports may have multiple underlying causal mechanisms which could be separated; prescriptions for the multiple mechanisms would be developed. Mapping may also provide some opportunity for refinements. Where the assessment identifies impacts caused by non-forestry related activities, the prescription team must take these into account and develop prescriptions only for those contributions related to forest practices. This is especially important in areas of mixed use. The management team should include those non-forestry related impacts in the final report for notification to the proper jurisdictional authorities.
5. *Field review.* Field review of resource-sensitive areas may be necessary. Appropriate members of the field team should be on site for this review. The team should identify whether areas are resource-specific (limited to identifiable sites) or basin-wide.

6. *Propose prescriptions.* Each previously identified area of resource sensitivity will have causal mechanism reports. For each, there will be an assigned management response call from the rule matrix (Figure 13) and WAC 222-22-070(3). The team's task is to determine if and how specific forest practices and activities can be conducted consistent with the standard of protection required in the rule. Prescriptions must address the issues and processes identified in the causal mechanism reports and meet the rule standard.

Where a proposed voluntary action would lead to a different set of prescriptions than those that would be necessary without the voluntary action, the team should describe, if possible, two (or more) alternative series of actions: a prescription that is necessary if the voluntary action is not taken, and another prescription that is made possible by taking the voluntary action.

Prescriptions must be reasonably designed to meet the standard set forth in the rules (WAC 222-22-050(2)(d) or WAC 222-22-070(3)); they must either minimize or prevent or avoid as specified in the causal mechanism report based on the resource assessment, the likelihood of adverse change and deliverability that has the potential to cause a material, adverse effect to resource characteristics. In other words, prescriptions are to work on the "hazard" side of the equation. They are designed to minimize, or prevent or avoid, additional contributions to an existing problem or new contributions where a problem does not currently exist, but has the potential to exist; such potential needs to have been identified during the assessments. It is important to note, however, that the prescriptions are not required to minimize, or prevent or avoid, any further or potential contribution, but only those that have the potential to cause a material, adverse effect to a resource characteristic (e.g., damage to spawning habitat). These prescriptions are intended to create conditions in which these resources are allowed an opportunity to recover.

Where the matrix requires "minimize," the intent is to minimize the likelihood of those events or chronic circumstances identified in the causal mechanism report that have a potential for material, adverse impacts to resource characteristics; the intent is not to minimize the adverse impacts to the resource characteristics.

Figure 13. Matrix used to produce management response calls for a given problem statement within a causal mechanism report (same as Figure 9 in Resource Assessment).

Cumulative Effects Rule Matrix

		Likelihood of Adverse Change and Deliverability		
		L	M	H
RESOURCE VULNERABILITY	L	Standard	Standard	Prevent
	M	Standard	Minimize	Prevent
	H	Standard	Prevent	Prevent

Where the matrix requires “prevent or avoid,” the intent is to prevent or avoid events or chronic circumstances identified in the causal mechanism report that have the potential for material, adverse effects. One of the solutions may be to avoid or defer activities such as harvesting, road construction or use, salvage, that may contribute to the problems identified in the causal mechanism report. Other solutions could include technological solutions that prevent or avoid the effects of the forest practices identified as potential problems in the causal mechanism report.

The team’s responsibility is to develop various ways to address the processes and issues identified in the causal mechanism report. Consideration should be given to all relevant factors. The team is encouraged to develop more than one prescription for each causal mechanism report. This allows landowners to select from a variety of options.

Each landowner in the watershed is entitled to submit draft prescriptions for its lands to the team. A landowner need not be qualified under WAC 222-22-030 to submit draft prescriptions for its lands. The team should compile all those prescriptions and discard those that are not reasonably expected to work. The team can use the various proposed prescriptions to prepare alternatives for each situation.

Prescriptions will generally be resource-specific, but may include broad responses such as road maintenance and abandonment plans. If the causal mechanism report requires, prescriptions might include a verification step, such as determination if an identified field condition actually exists on the site of the proposed forest practice. They should also include a mechanism for

applying prescriptions to recognized land features identified in the WAU as areas of resource sensitivity but not fully mapped.

Currently utilized practices that are successful, versus standard forest practices as defined by rule or past practices, should be encouraged. Prescriptions might include an operational monitoring component or landowner plan to verify compliance. Staged operations are a possibility when there are appropriate prescriptions implemented consistent with the staging. Creative problem solving is essential for prescription writing and the inherent variation of assessment products.

Time frames for implementation of the prescriptions will be required where appropriate. For example, time frames with expected start and completion dates for road maintenance plans should be required.

7. *Potential subjects.* For issues identified in the causal mechanism report, the follow issues may need to be addressed:

I. Harvest

A. *Method of harvest*

1. even-age or uneven-age
2. yarding method (linked to roads)
3. designated skid trails

B. *Harvest size limitation, if any, for rain-on-snow or other purposes*

C. *Timing of harvest activities (e.g., summer v. winter)*

D. *Wet-weather restrictions*

E. *Buffers*

1. stream type
2. stream reach
3. wetland type

F. *Hydrologic maturity*

G. *Possibility of no harvest*

II. Road construction, maintenance, abandonment, and use

A. *Construction*

1. Location (including avoidance)
2. Grade
3. Sidecast/endhaul
4. Drainage structures-design for 50- or 100-year storms
 - a. Bridges, fords
 - b. Culvert size, spacing, intake, outfall, skew

- c. Waterbars
- d. Outsloping
- e. Ditch size, depth, gradient, shape
- f. Vegetative protection or buffers
- 5. Road width control
- 6. Compaction
- 7. Rip-rap anchoring toe, retaining walls
- 8. Revegetating cuts and fills
- 9. Berms, dikes, debris racks, overflow channel
- 10. Surface material
- 11. Water management-gullies, natural drainage, cross-drains, wetland protection
- 12. Abandonment as a design standard

B. Maintenance

- 1. Frequency and timing
- 2. Drainage structures
- 3. Surface-crowned, insloped, outsloped
- 4. Emergency maintenance (e.g., storm events)
- 5. Monitoring, sampling

C. Abandonment

- 1. Water management
 - a. natural drainage
 - b. culverts
 - c. bridges, fords
 - d. cross-ditch size, location, spacing
 - e. water bars
- 2. Surface treatment
 - a. outslope
 - b. inslope
- 3. Fill and sidecast
- 4. Revegetation
- 5. Landing

D. Road Use

- 1. Timing
- 2. Activities

- 8. *Support for prescriptions.* Prescriptions must be expected to work. Sufficient rationale, based on local operational expertise or information from appropriate scientific literature, should be provided. This is not a literature review exercise but rather a reasonable demonstration that the proposed prescription will adequately address the specific processes and issues identified by the causal mechanism report. The explanation of the proposed prescriptions can be in several forms. Logic and reasoning relative to the causal report may be

sufficient justification. Science and research reports that support the proposed prescription, or examples of successful prescriptions from past operations rather than avoidance as a prescription should be provided. The team shall document their technical rationale for selecting prescriptions.

9. *Voluntary actions.* The watershed analysis rules do not require restoration projects; however, there may be opportunities to identify such projects for voluntary implementation. The team should look for these restoration and enhancement opportunities and report on their scope and feasibility. Identification of these opportunities will be helpful to landowners and other resource managers in forming cooperative projects for specific watersheds. If used to justify alternative prescriptions, proposed restoration and enhancement projects must be proven to be successful (see previous section).
10. *Report.* The team should compile the prescriptions in an interim/final draft report for the watershed. The format shall be consistent with the assessment report and products, with linkage between the products and prescriptions as needed. For each area of resource sensitivity, prescriptions should be clearly stated and complete. Maps and drawings may be helpful. Include appropriate definitions or explanations as needed.
11. *Timing.* Upon departmental acceptance of the assessments, the field managers team shall submit the prescriptions to the department within 21 days for Level 1 Analysis or 30 days for Level 2 Analysis (see WAC 222-22-070(4)).
12. *Agency, tribal and public review of prescriptions.*
 - a. *Final Watershed Analysis, Level 1 or Level 2.* The field managers team shall submit the final draft watershed analysis report to the department (DNR). The department shall circulate the draft to appropriate divisions in the departments of fisheries, wildlife, and ecology, affected Indian tribes, local governments, affected landowners in the WAU and the public for their review and comments (see WAC 222-22-080(1)). This is a 30-day circulation period.
 - b. *Interim Watershed Analysis, Level 1 Only.* Before submitting recommended interim prescriptions to the department, the field managers team shall review the recommended prescriptions with available representatives of the jurisdictional management authorities of the fish, water, and capital improvements of the state. This includes, but is not limited to the departments of fisheries, ecology, and affected Indian tribes. The team shall provide for a reasonable period of time for comments; such comments must occur within the 21 days required by rule. See number 11 (Timing) above.

A copy of the draft report should also be provided to the relevant watershed analysis team. The team may, when consistent with existing laws, rules and methods, incorporate agency and tribal input for the development of an interim/final report.

13. *Interim/Final Watershed Analysis Report.* The field managers team attaches the prescriptions for each identified resource sensitivity (recorded on Form 6) to the Causal Mechanism Report. This combined report is termed the Watershed Analysis Report for the WAU. The report will be considered interim if there are indeterminates within the resource assessment (Level 1). The report will be considered final when the indeterminates have been resolved by Level 2 analysis and prescriptions. Include non-forest practice related contributing activities.
14. *The interim or final report will be submitted to the department.*
 - a. *In WAUs* that contain no areas of resource sensitivity or no indeterminate ratings, Level 1 Analysis is considered final after approval by the department.
 - b. *In WAUs* that contain indeterminate ratings, Level 1 Analysis is considered interim after approval by the department. It is anticipated that such WAUs will receive Level 2 Analysis, converting the interim into final.
 - c. *Level 2 Analysis* is considered final after approval by the department.

Review Process

1. *Review of watershed analysis.*
 - a. *Final Watershed Analysis.*

The department shall circulate copies of the final watershed analysis (assessments plus prescriptions, if any) to other relevant state and federal resource-management agencies, affected Indian tribes and local governments, forest landowners, and the public for their review and comment according to the rules. The department shall review the comments and revise the watershed analysis as appropriate, and approve or disapprove the analysis within 30 days of the receipt of the watershed analysis report (WAC 222-22-080(1)).
 - b. *Interim Watershed Analysis.*

Interim Level 1 watershed analysis products are not circulated (see WAC 222-22-080(1)) but comments to the department are encouraged, subject to the timing mandates established by WAC 222-22-050(5) and WAC 222-22-070(4). Copies will be available for review at the regional office.

2. *State Environmental Policy Act.* The Forest Practices Board has directed the department to consider the approval of a watershed analysis as a governmental action subject to SEPA. The responsible official is the RP&S Assistant Regional Manager, DNR.
 - a. *The field managers team* for any watershed analysis shall prepare an environmental checklist. Parties conducting watershed analysis shall prepare the SEPA documents at their sole expense.
 - b. *The responsible official* shall review the checklist for adequacy and make a draft threshold determination.
 - c. *15-day SEPA Comment Period.*
 - i. Final Watershed Analysis. The determination shall be circulated for a 15-day commentary period during the same time period that it circulates the draft watershed analysis under WAC 222-22-080(1).
 - ii. Interim Watershed Analysis. There is no 30-day circulation period required under the forest practice rules (WAC 222-22-050(5)). The department shall circulate the interim watershed analysis environmental checklist threshold determination for a 15 day SEPA review.
 - d. *Subsequent to the evaluation* of the comments, the responsible official may approve, modify or deny the watershed analysis. In some circumstances, an EIS may be required.

Form 6. Suggested Format for Prescription Writing

WAU: _____

Resource Sensitivity Number: _____

Situation Sentence for the Area (from causal mechanism report): _____

Triggering Mechanism (from causal mechanism report): _____

Rule Call for Management Prescriptions (from causal mechanism report): _____

Field Observations: _____

Prescriptions: _____

Justification for Prescriptions: _____

Review of Watershed Analysis by the Department of Natural Resources

DNR receives completed draft watershed analysis report

Start of 15-day SEPA commentary period. This runs concurrently with the 30-day FP commentary period.

Preliminary review for completeness & accuracy completed within about one week. Start 30-day FP review.

Close of FP and SEPA commentary periods. The Responsible Official evaluates all comments.

Within 1-2 weeks, the threshold decision is made and the analysis is approved or disapproved.

